2003 South Carolina Energy Use Profile
HIGHLIGHTS

SOUTH CAROLINA Energy Office

Table of Contents

Summary of South Carolina's Latest Energy Statistics

In 2000, South Carolinians spent $10.2 billion in energy expenditures, nearly $1.9 billion (22.9 percent) more than the amount spent in 1999. This is equivalent to $2,536 per person in South Carolina, and ranks 23rd in the nation. The transportation sector accounted for 40 percent of the expenditures. In addition, South Carolina ranks 21st in total energy consumption per capita, using more energy per person than 30 other states (including the District of Columbia).

In the residential sector, South Carolina ranks 25th in energy consumption per capita, 38th in the commercial sector consumption per capita, 18th in the industrial sector consumption per capita, and 29th in the transportation sector consumption per capita.

When broken down by fuel source, South Carolina ranks first in the nation in nuclear energy consumption per capita; 44th in the nation in natural gas consumption per capita; 39th in petroleum consumption per capita; 44th in coal consumption per capita, and ranks 3rd in electricity consumption per capita.

Electricity

Electricity generation in South Carolina increased by 142.2% from 1982 to 2002. On a comparative level, nuclear energy accounted for 57 percent of electricity generation in South Carolina in 2002, while accounting for only 9.0% in the United States. With 58.4 percent of South Carolinians using electricity as their primary source for heating in the residential sector, the average monthly residential bill was $88.93. South Carolina's average residential rate per kWh in 2001 ranked 25th highest in the nation.

The average annual electric bill for South Carolina residential electric customers from investor-owned utilities, increased by 62.7 percent, or $403.94, from 1981 to 2001.

From 1981 to 2001, the kWh per residential customer increased by 10 percent in South Carolina compared with 19.2 percent on the national level. The average annual electric bill for South Carolina residential electric customers in 2001 is $1075.41.

From 1982 to 2002, total electric retail sales to all customers increased by 116.5 percent. The industrial sector comprises 41 percent of all electric retail sales in South Carolina.

Petroleum

The transportation sector accounted for 79.1 percent of all petroleum use in South Carolina in 2000. South Carolina's gasoline fuel consumption trend is similar to that of the United States, but continues to substantially exceed the national average on a per capita basis.

In 2001, 2,849,885 licensed South Carolina drivers with 3.1 million registered vehicles drove 46.6 billion miles on South Carolina highways while consuming 2.3 billion gallons of gasoline (up 4.5 percent from 2000). The average annual miles driven per vehicle in South Carolina is 14,828, which is 19 percent higher than the U.S. average. The average motor fuel per vehicle, 926

gallons, is 22 percent higher than the national average.

Natural Gas and Coal

Natural gas deliveries to electric utilities in South Carolina experienced a dramatic 236 percent increase in 2002 over 2001 deliveries, as compared with 3.9 percent on the national level. The industrial sector in South Carolina had an increase of 22.6 percent during the same period, as compared with a decline of 3.3 percent on the national level.

Since only 26.2 percent of South Carolinians use natural gas as a fuel source for heating, the price has historically been higher than the national average. Residential natural gas prices have risen by $4.51 per thousand cubic feet since 1982, as compared with $2.62 for the U.S. average. The global market situation and the actions of the South Carolina Public Service Commission, which regulates the natural gas industry, will determine if prices will increase in the near future.

Electric utilities accounted for 87.6 percent of all coal used in South Carolina in 2001, and have increased their consumption by 65.7 percent since 1981. There was an 11.2 percent rise in average prices from 2000.

Energy Efficiency

Although South Carolina has made progress in energy efficiency as measured in energy consumption per dollar of gross domestic product, it is ranked 16th highest in the nation in this category, with consumption 25 percent higher than the national average.

The number of alternative-fueled vehicles (AFVs) in South Carolina is progressing at a steady rate, increasing by 17.4 percent from 1999. Liquefied propane gas (LPG) accounted for 77.8 percent of the alternative fuels used in 2000. Since South Carolinians consume the majority of their energy in the transportation sector, AFV use and technology has the potential to contribute to energy efficiency in this area, albeit a small fraction of the total.

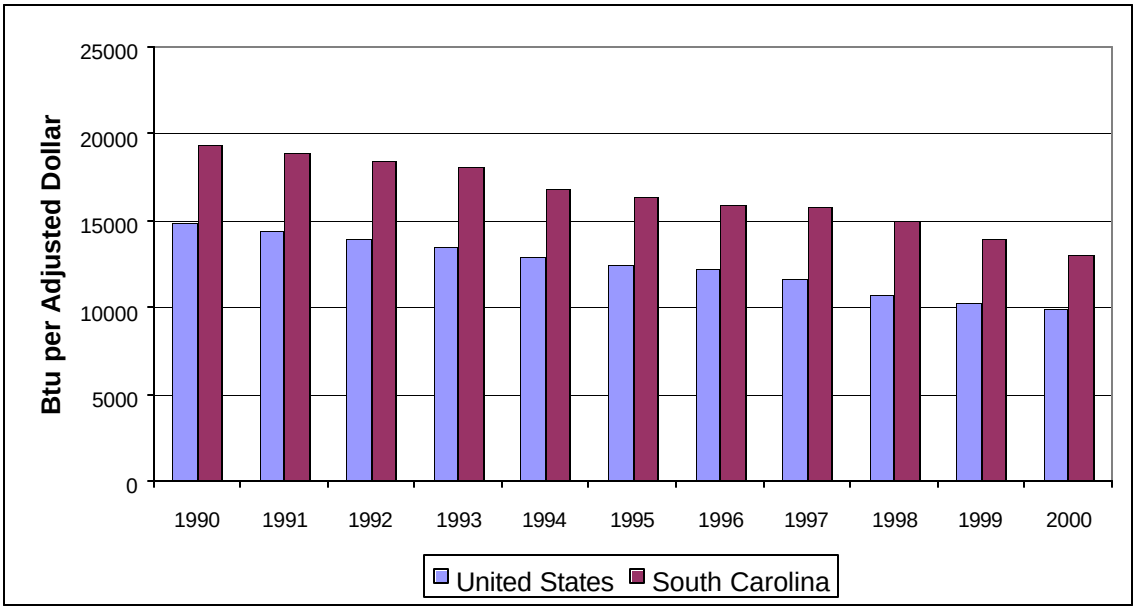
The 2003 South Carolina Energy Use Profile, to be published in January 2004, is a detailed and comprehensive source of the latest available information on energy consumption, prices, expenditures, and sources of supply. The purpose of this profile is to serve as a useful interpretative tool for state policy makers, educational institutions, and the general public.

Energy Consumption per Dollar Gross State Product / Gross Domestic Product

When considering energy efficiency as measured in energy consumption per dollar of gross state product, South Carolina has made significant progress over the last five years. Since 1990, the economy has grown somewhat faster than energy consumption, resulting in a 32.6% decrease (from 19,318 to 13,028) in Btu consumed per dollar of economic output (gross state product, adjusted for inflation).

Nevertheless, South Carolina's energy efficiency trails behind the national average of 9,879 Btu per dollar of gross domestic product (GDP), which is nearly 25% lower than South Carolina's energy efficiency index. Consequently, South Carolina is ranked 16th highest in energy use per dollar of gross domestic product in the U.S.

1990-2000



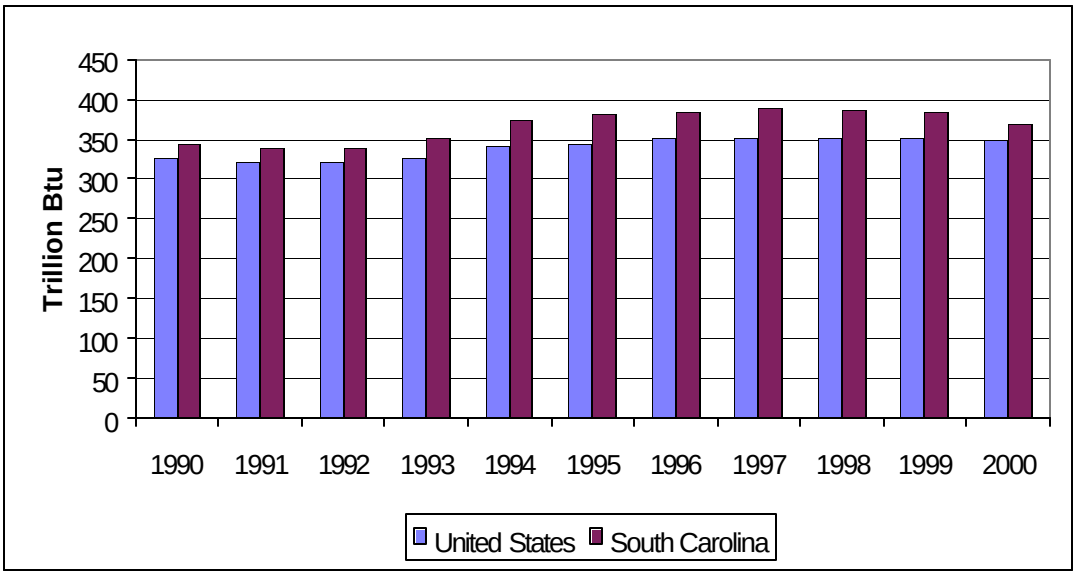
Source: Energy Information Administration, *State Energy Data Report;* U.S. Department of Commerce, Bureau of Economic Analysis.

South Carolina Energy Consumption per Capita

Another measure of energy efficiency is per capita energy use. South Carolina ranks 21st in total energy consumption per capita, using more energy per person than 30 other states. However, South Carolina's energy consumption per capita is showing signs of leveling off after increasing more rapidly than the United States average during most of the 1990's.

South Carolina saw a 7.6% increase in energy consumption per capita between 1990 and 2000, while the United States per capita rate rose an equivalent 7.0%. South Carolina's total energy use increased 15.5% between 1990 and 2000, while the population grew 14.9% over the same period.

1990-2000

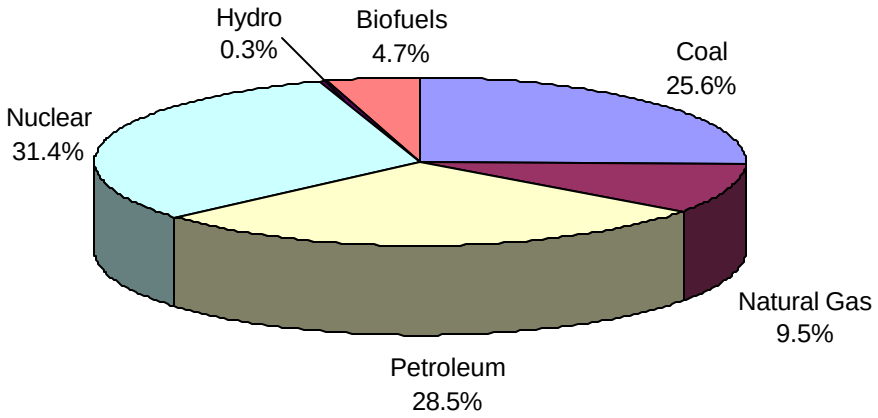


Source: Energy Information Administration, *State Energy Data Report.*

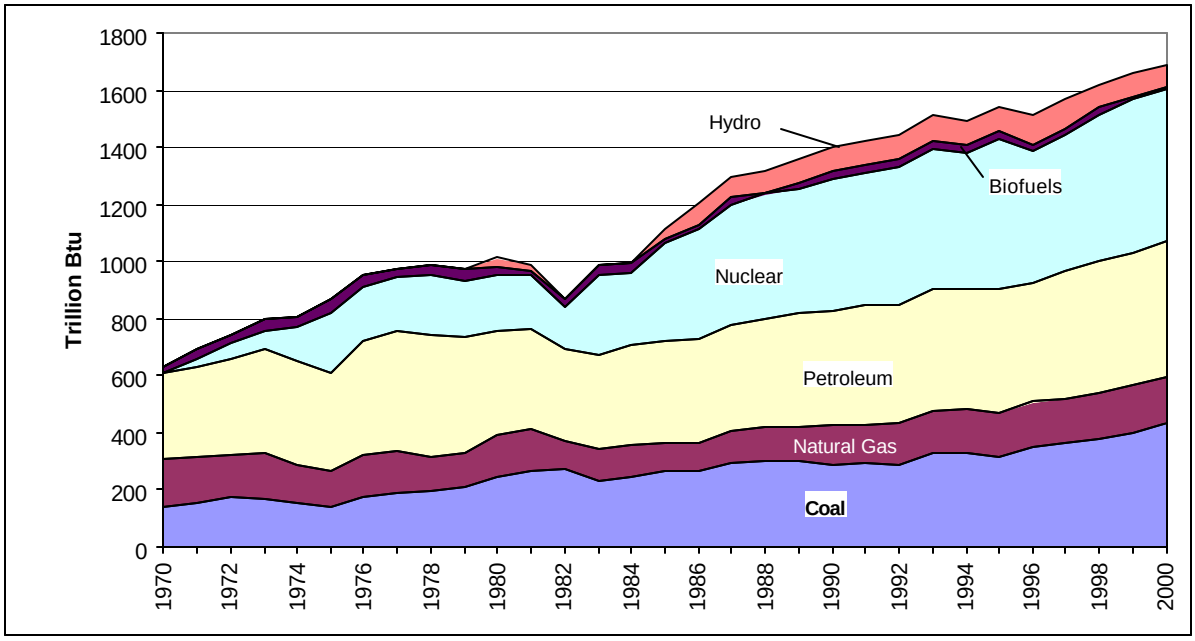
South Carolina Energy Consumption by Fuel Source

Total energy consumption in South Carolina increased by 97.5% from 1970 to 2000, while energy consumption in the United States rose by only 44.5% during the same period. Most of the increase in South Carolina occurred in the nuclear sector, where energy use increased by 179.6% from 1980 to 2000. In 2000, nuclear energy accounted for 31.4% of the state's energy consumption as compared with only 8% on the national level. On a comparative level, South Carolina ranks 20th in the nation in coal consumption, 36th in natural gas consumption, and 26th in petroleum consumption.

2000
(Percent of Total)



1970-2000

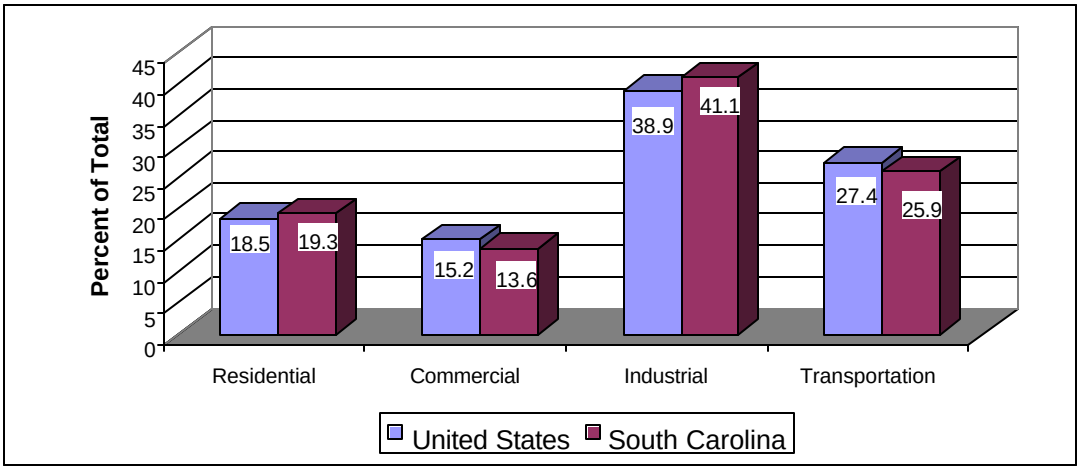


Source: Energy Information Administration, *State Energy Data Report.*

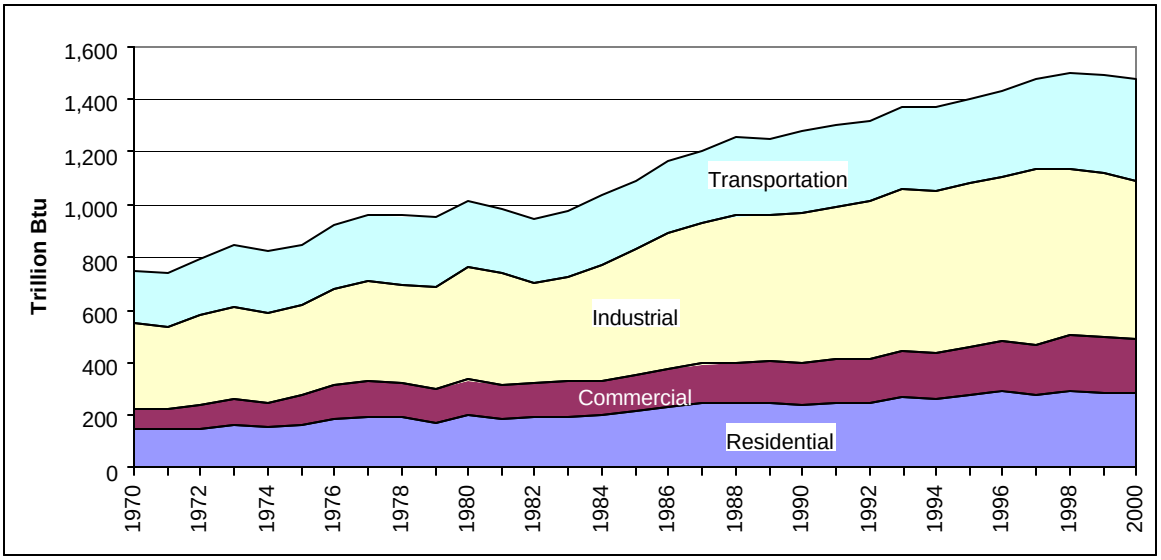
South Carolina Energy Consumption by Economic Sector

From 1970 to 2000, energy consumption in the South Carolina residential sector increased by 91.2% as compared with 32.6% for the U.S.; commercial sector energy use increased by 168.2% while the U.S. saw a 78.9% increase; industrial sector consumption increased by 86.9% as compared with a 29.1% increase in the U.S.; and the transportation sector saw an increase of 93.0% as compared with 67.1% for the nation. In 2000, the South Carolina industrial sector accounted for 41.1% of energy consumption, followed by the transportation sector with 25.9%, the residential sector with 19.3%, and the commercial sector with 13.6%.

2000 U.S. and South Carolina Energy Consumption Estimates by Economic Sector



South Carolina 1970-2000

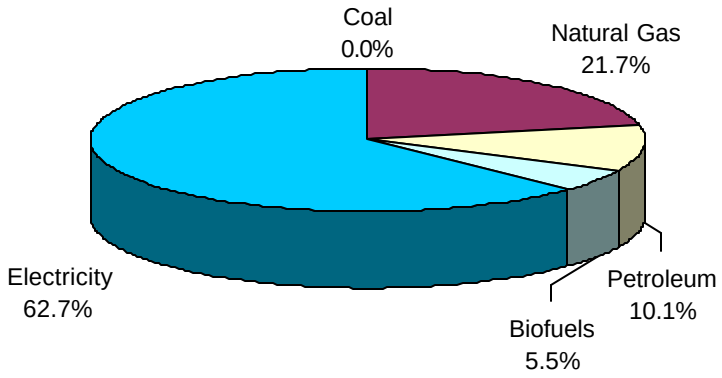


Source: Energy Information Administration, *State Energy Data Report*.

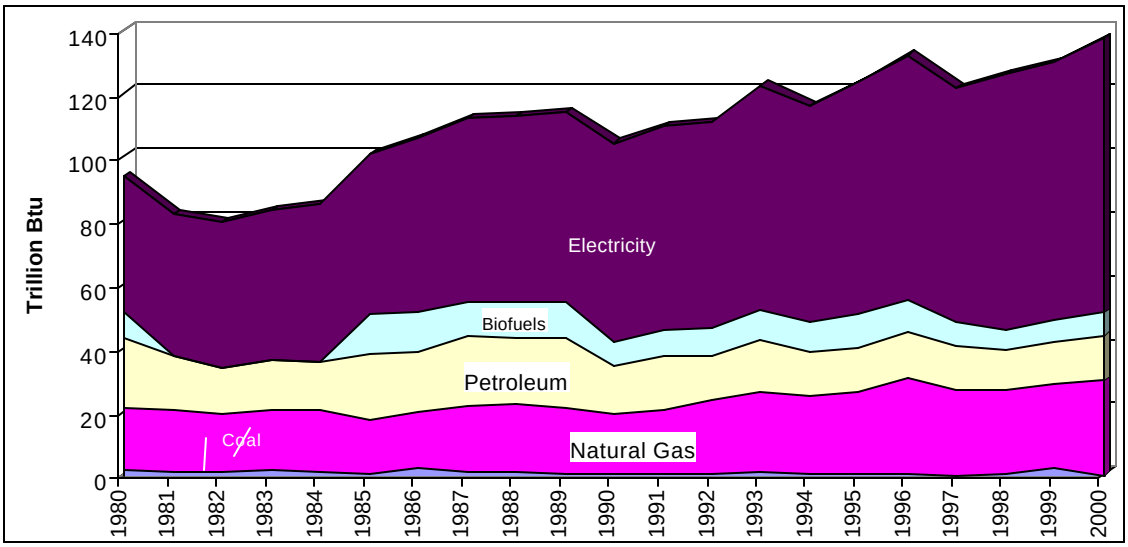
South Carolina Residential Energy Consumption

South Carolina residential end-use energy consumption increased by 43.9% from 1980-2000, while the United States saw an increase of only 14.1% during the same period. Electricity accounts for the majority of residential energy consumption in South Carolina (62.7%), but accounts for only 36.3% on the national level. Natural gas use in South Carolina has declined slightly since its peak years of the mid-1970's, accounting for 21.7% of energy consumption, compared to 45.6% of residential energy consumption in the United States. South Carolina ranked 27th in the nation in total energy consumption per capita in the residential sector.

2000



1980-2000

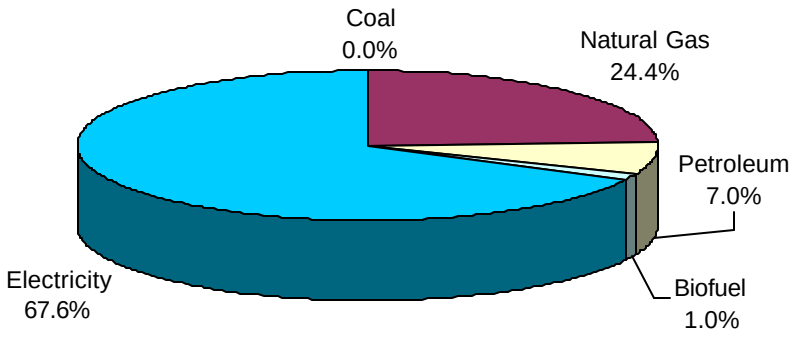


Source: Energy Information Administration, *State Energy Data Report*.

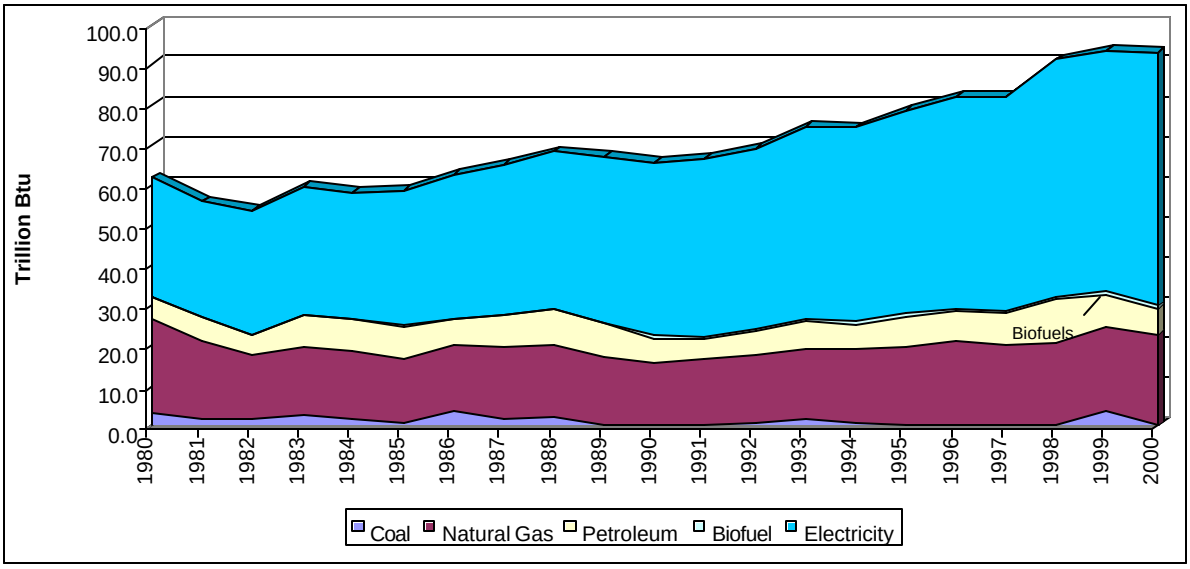
South Carolina Commercial Sector Energy Consumption

South Carolina energy consumption in the commercial sector increased 49.6% from 1980 to 2000. In 2000, electricity accounted for 67.6% of end-use energy consumption in the South Carolina commercial sector, as compared with 48.5% in the United States. Natural gas makes up 24.4% of the commercial energy consumption in South Carolina, while the United States is much higher with 40.4%. South Carolina ranks 38th in the nation in energy consumption per capita in the commercial sector.

2000



1980-2000

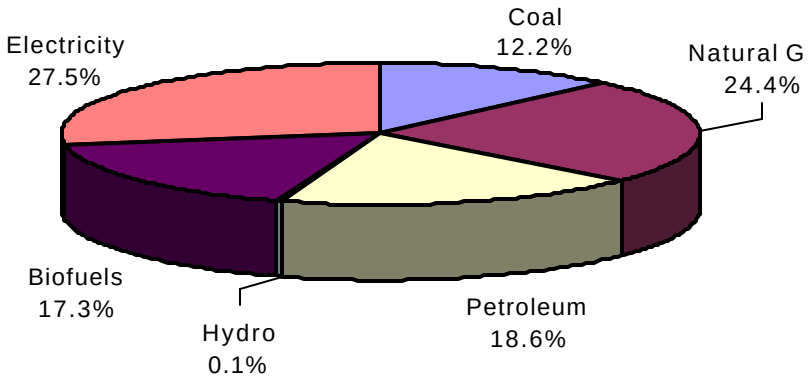


Source: Energy Information Administration, *State Energy Data Report*.

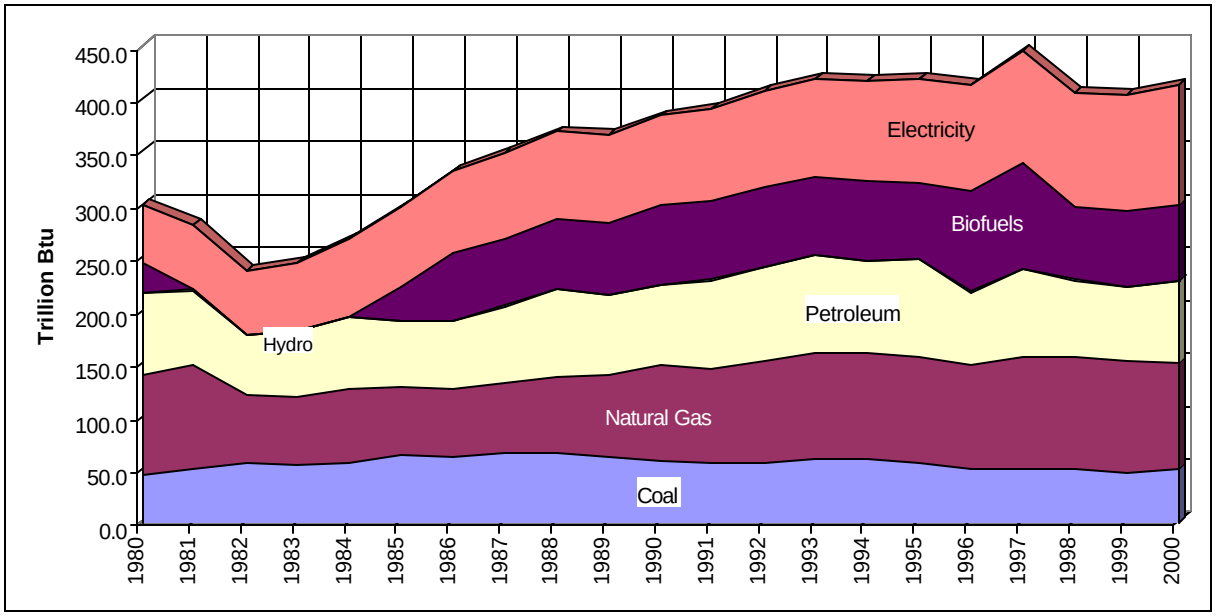
South Carolina Industrial Sector Energy Consumption

South Carolina experienced an increase of 40.7% in industrial energy consumption between 1980-2000, as compared with 18.6% in the United States. As a result, South Carolina ranks 18th in the nation in industrial energy consumption per capita. Unlike the residential and commercial sectors, which rely primarily on electricity, energy consumption in South Carolina's industrial sector is divided among electricity (27.5%), natural gas (24.4%), petroleum (18.6%), biofuels (17.3%), and coal (12.2%). On the national level, natural gas (33.9%) and petroleum (28.8%) were the leading fuel sources for the industrial sector.

2000



1980-2000

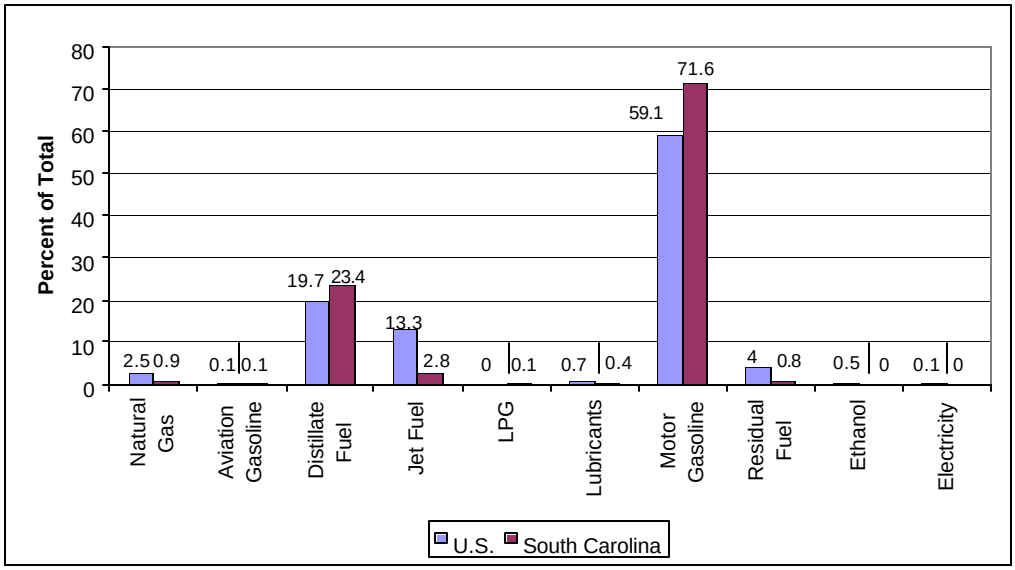


Source: Energy Information Administration, *State Energy Data Report*.

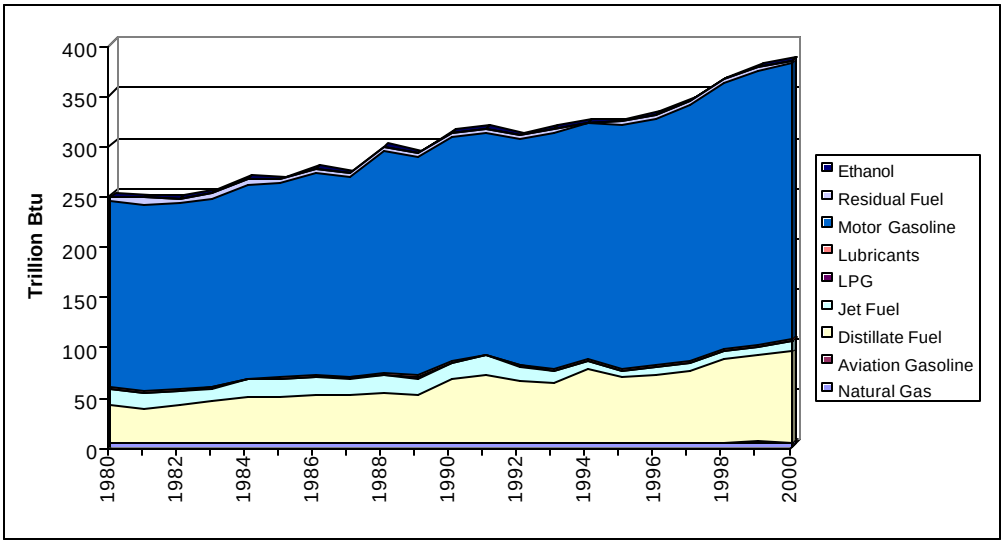
South Carolina Transportation Sector Energy Consumption

South Carolinians increased their consumption of energy use in the transportation sector by 54.5% from 1980 to 2000, as compared with an increase of 36.5% on the national level. In 2000, South Carolina ranked 29th in per capita motor fuel use.

U.S. and South Carolina Transportation Energy Consumption, 2000



South Carolina Transportation Sector Energy Consumption, 1980-2000

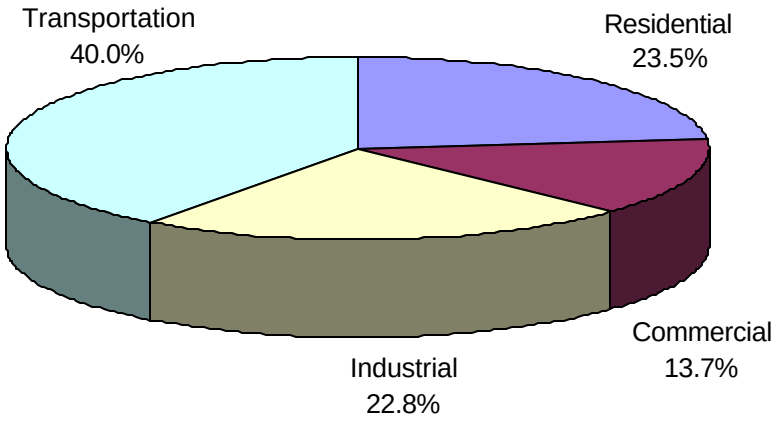


Source: Energy Information Administration, *State Energy Data Report*.

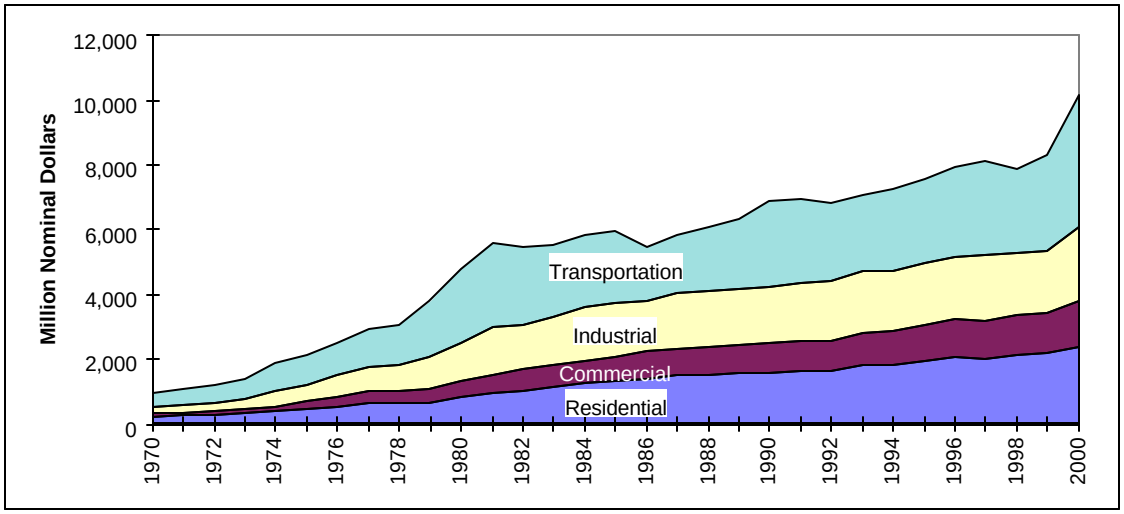
South Carolina Energy Expenditures by Economic Sector

South Carolinians spent $10.2 billion on energy in 2000, earning a ranking of 23rd in the nation in energy expenditures per capita. Since 1970, energy expenditures have increased by 947.3% in nominal dollar terms while energy consumption increased by 97.5%. Transportation accounts for the largest share of energy expenditures, followed by the residential and industrial sectors.

2000



South Carolina End-Use Energy Expenditures by Sector, 1970-2000

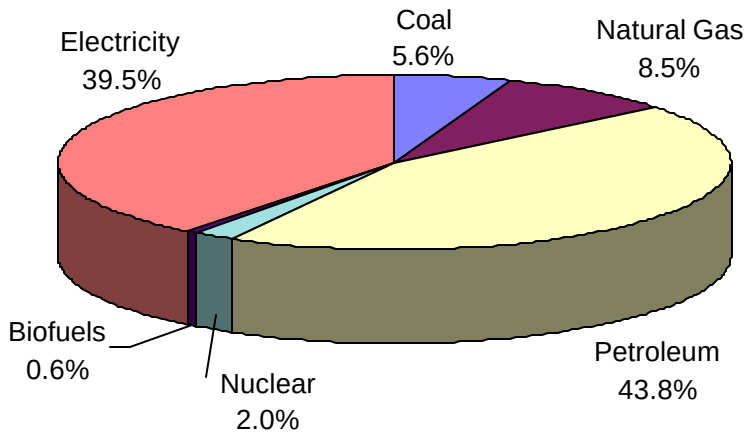


Source: Energy Information Administration, *State Energy Price and Expenditure Report*.

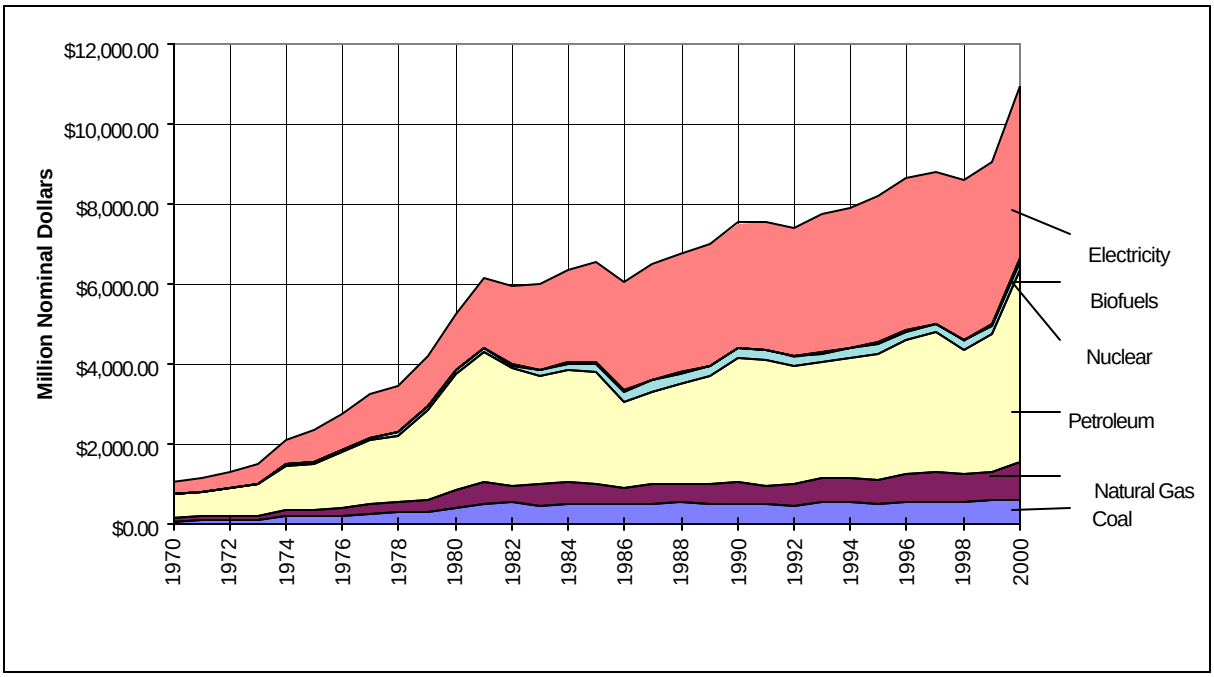
South Carolina Expenditures by Fuel Source

For the first time since 1990, South Carolina petroleum expenditures surpassed that of electricity in 2000. Petroleum expenditures accounted for 43.8% in South Carolina with a ranking of 37th per capita in the nation. Electricity accounted for 39.5% of expenditures in South Carolina and ranked 4th in the nation per capita. South Carolina ranked 44th per capita in the nation for natural gas expenditures, and 13th for coal expenditures per capita.

South Carolina, 2000



South Carolina Energy Expenditure Estimates by Fuel Source, 1970-2000

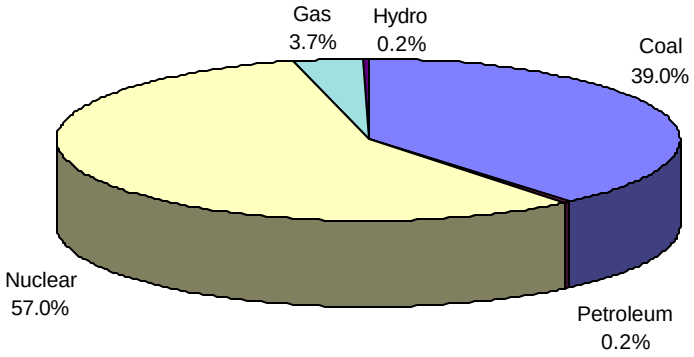


Source: Energy Information Administration, *State Energy Data 2000*.

Electricity Generation in South Carolina

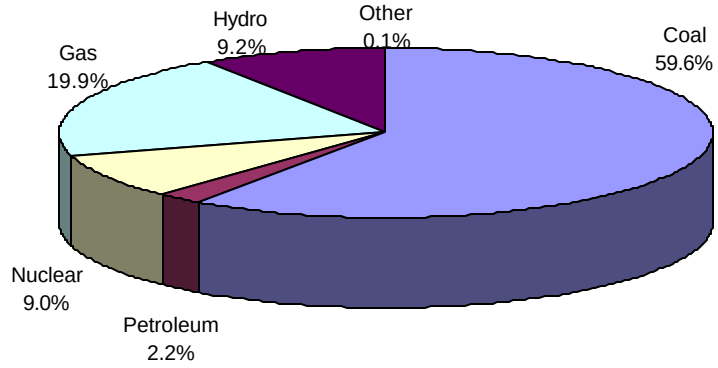
As South Carolina's economy has grown, so has its need for electricity. Electricity generation in South Carolina increased by 142.2% from 1982 to 2002. On a comparative level, nuclear energy accounted for 57% of electricity generation in South Carolina (ranking 3rd in the nation for percent of electricity generated by nuclear energy) in 2002, while accounting for only 9% in the United States. Coal is the major fuel source for electricity generation in the United States, accounting for 59.6% in 2002 as compared with 39% in South Carolina.

South Carolina, 2002



Energy Information Administration, *Electric Power Monthly*.

United States, 2002

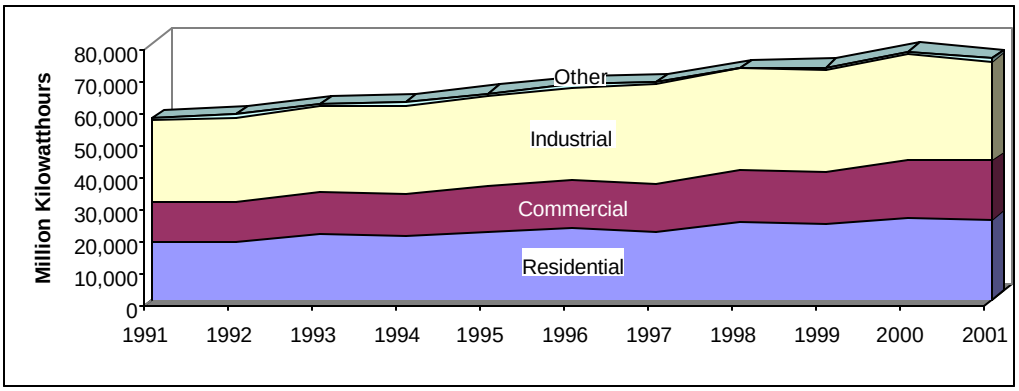


Energy Information Administration, *Electric Power Monthly*.

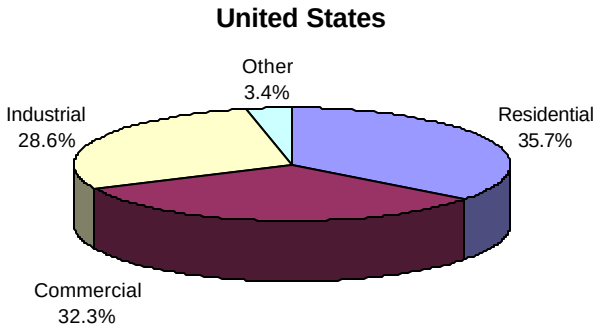
South Carolina Electricity Consumption by Sector

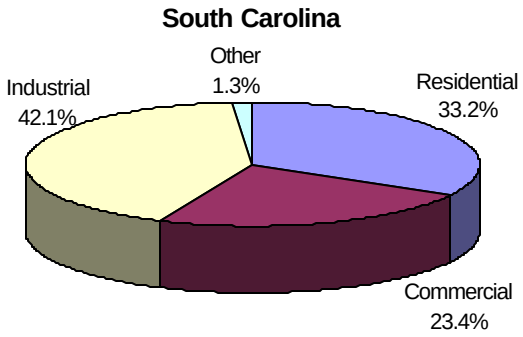
South Carolina electricity consumption to ultimate consumers in the residential sector increased by 39.1% from 1991 to 2001 in million kilowatthours. The commercial sector had an increase of 48.9%, and consumption in the industrial sector increased by 21.7%. On a comparative level, industry is the leading sector for electricity consumption in South Carolina, while the residential sector consumes the most on the national level.

South Carolina Electricity Consumption by Sector, 1991-2001



Comparative Charts of Electricity Consumption by Sector, 2001



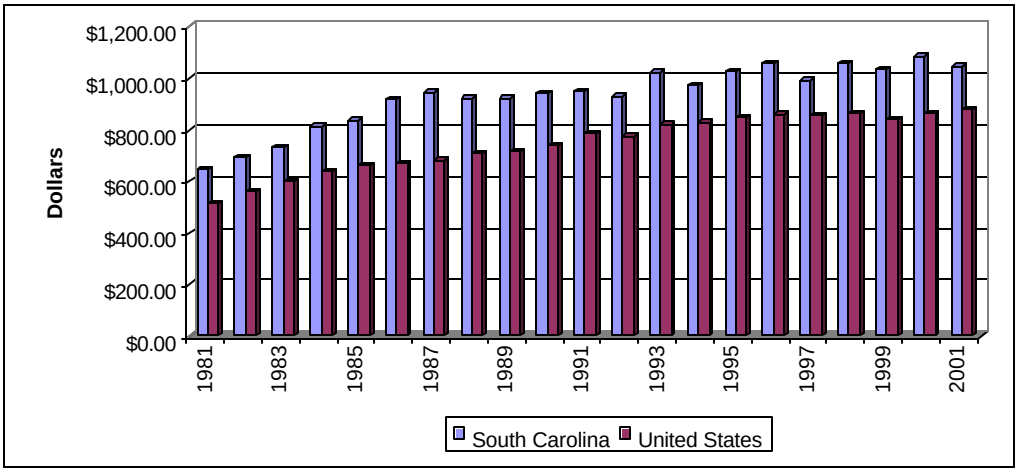


Source: Energy Information Administration, *Electric Power Monthly*.

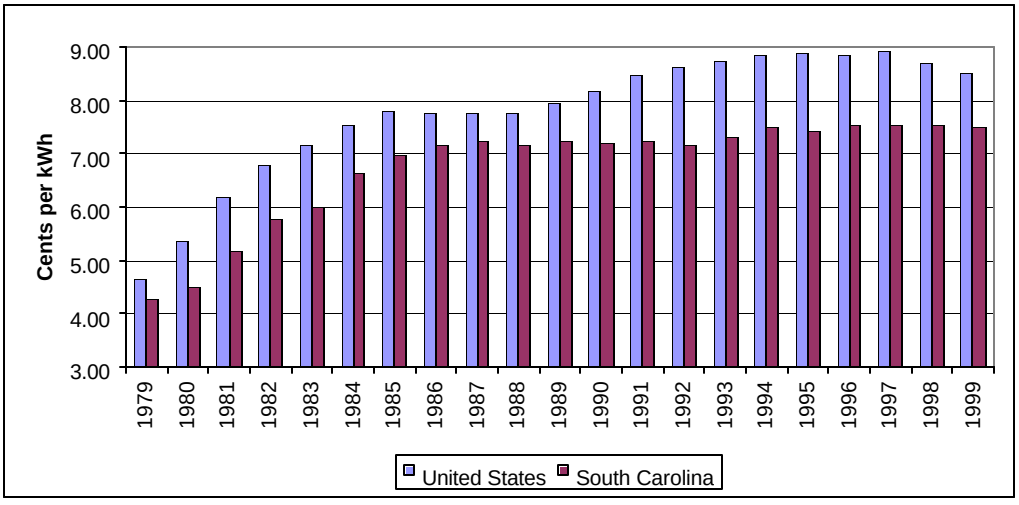
South Carolina Annual Average Residential Electric Bill and Electric Rates

The average annual electric bill for South Carolina residential electric customers increased by 62.7% or $403.94 from 1981 to 2001, as compared with an increase of 70.7% or $363.87 on the national level. South Carolina's average annual residential electric bill has been historically higher than the national average with an average of $1,048 in 2001, as compared with the national average of $878. The average electric rate for South Carolina residential customers increased by 47.9% or $.0248 per kilowatthour (kWh) during the same period, with the U.S. average increasing by 43.1% or $.0267.

Annual Average Electric Bill, 1981-2001



Annual Average Residential Electric Rates per kWh, 1981-2001

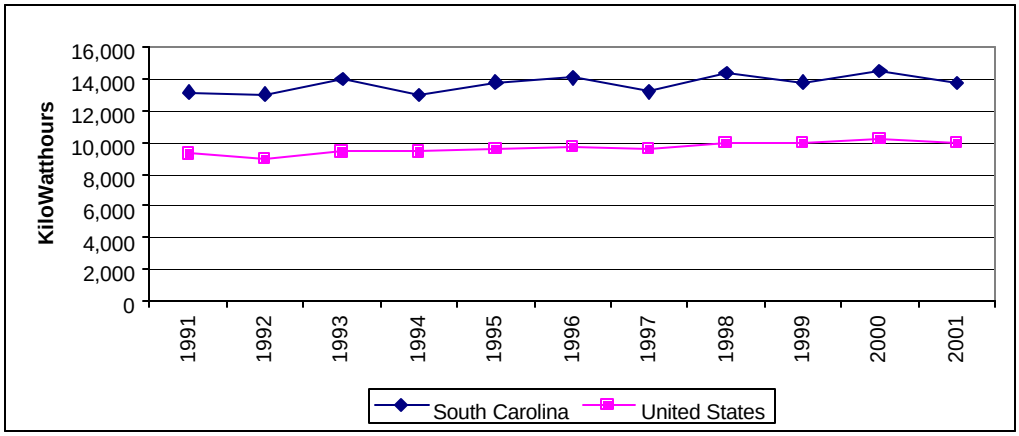


Source: Edison Electric Institute, *Statistical Yearbook of the Electric Utility Industry.*

Average Annual Residential Electricity Use in South Carolina

From 1991 to 2001, the electricity use per residential customer in South Carolina increased by 4.2% in kilwatthours (kWh), compared to 6.8% on the national level. In 2001, the average annual electricity use per person in South Carolina was 13,693 kWh, while the average annual use on the national level was 9,909 kWh per person.

Average Annual Residential Electricity Use per Customer, 1991-2001

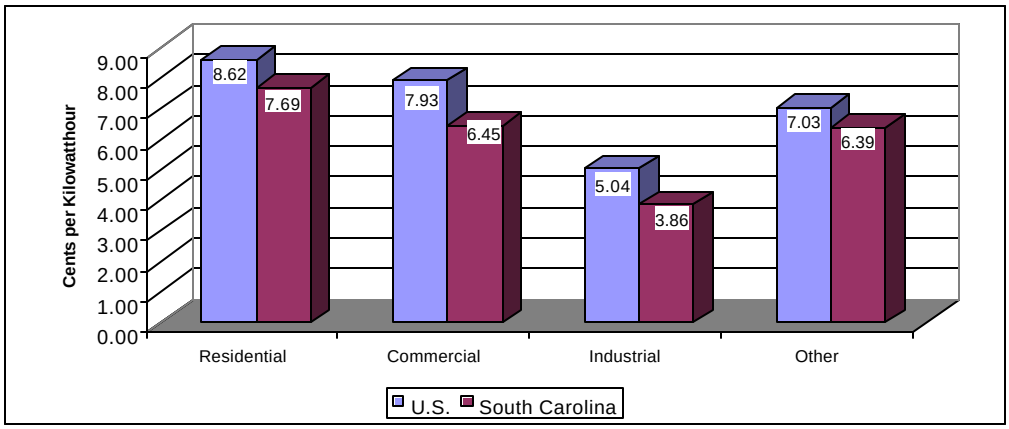


Source: Edison Electric Institute, *Statistical Yearbook of the Electric Utility Industry.*

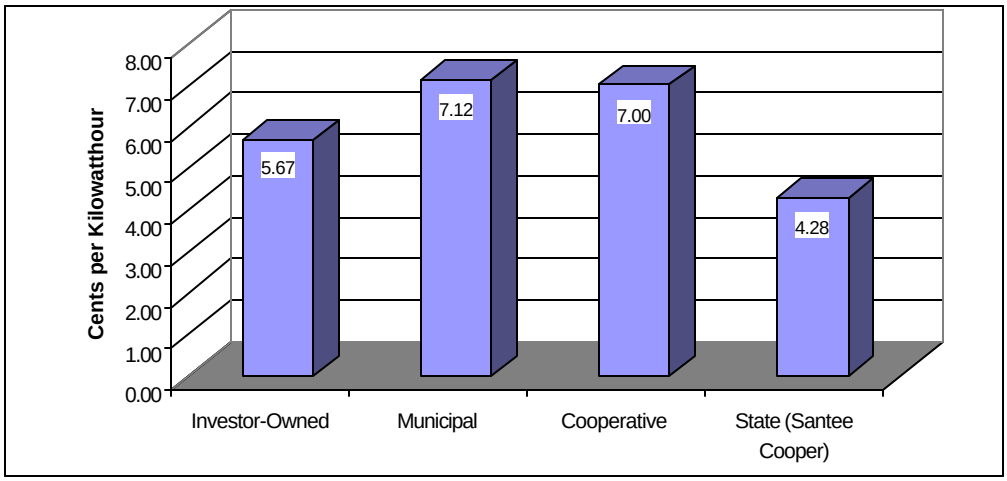
South Carolina Electric Utility Average Revenue per kWh by Sector, and Average Electric Revenue per kWh by Class of Ownership

South Carolina's average revenue per kWh is lower than the national average in every sector in 2001, but this has been a consistent pattern for years. Municipal-owned electric utilities have the highest average revenue per kWh in South Carolina, with the state-owned Santee Cooper utility having the lowest.

Average Revenue per kWh by Sector, 2001



Average Electric Revenue per kWh by Class of Ownership, 2001

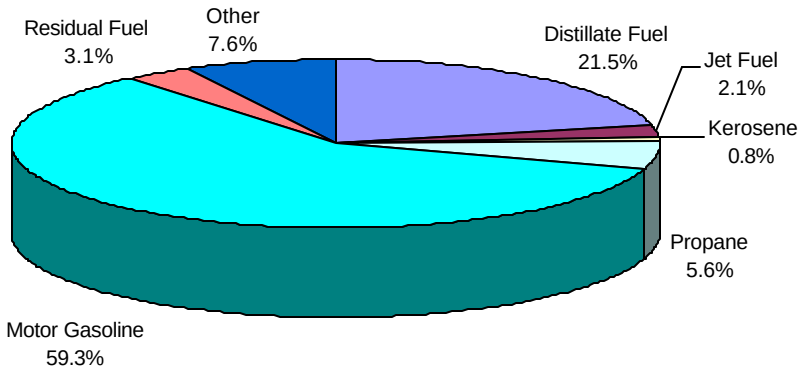


Source: Energy Information Administration, *Electricity Database File*.

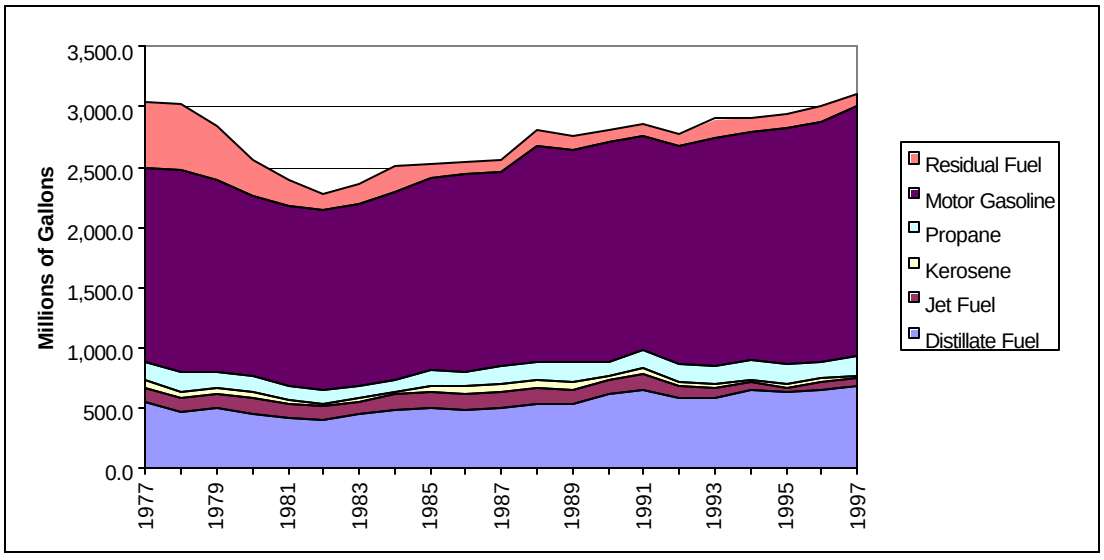
South Carolina Petroleum Consumption by Type of Product

South Carolina petroleum consumption increased by 33.4% during the period 1980 to 2000. The two petroleum products that were consumed the most during this period were motor gasoline (49.3% increase) and distillate fuel oil (80.5% increase).* Quite noticeable during this period was the significant decrease (61.3%) in the consumption of residual fuel, which is used for electric power production and various industrial purposes. In 2000, motor gasoline was the petroleum product consumed in the largest amount with 59.3%, while distillate fuel accounted for 21.5%.

2000



1980-2000



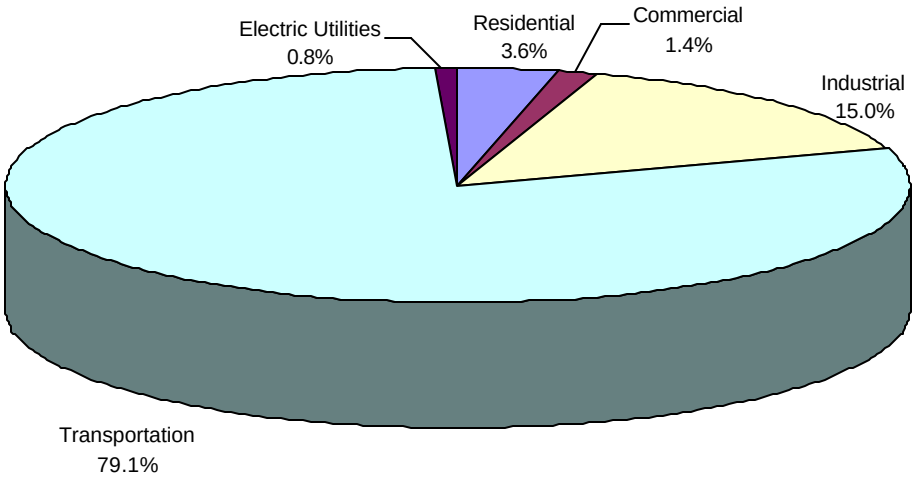
*Distillate fuel includes fuel oils No. 1, No. 2, and No. 4, and diesel fuels No. 1, No. 2, and No. 4; these products are used primarily for space heating, on-and-off highway diesel engine fuel, and electric power generation.

Source: Energy Information Administration, *State Energy Data*.

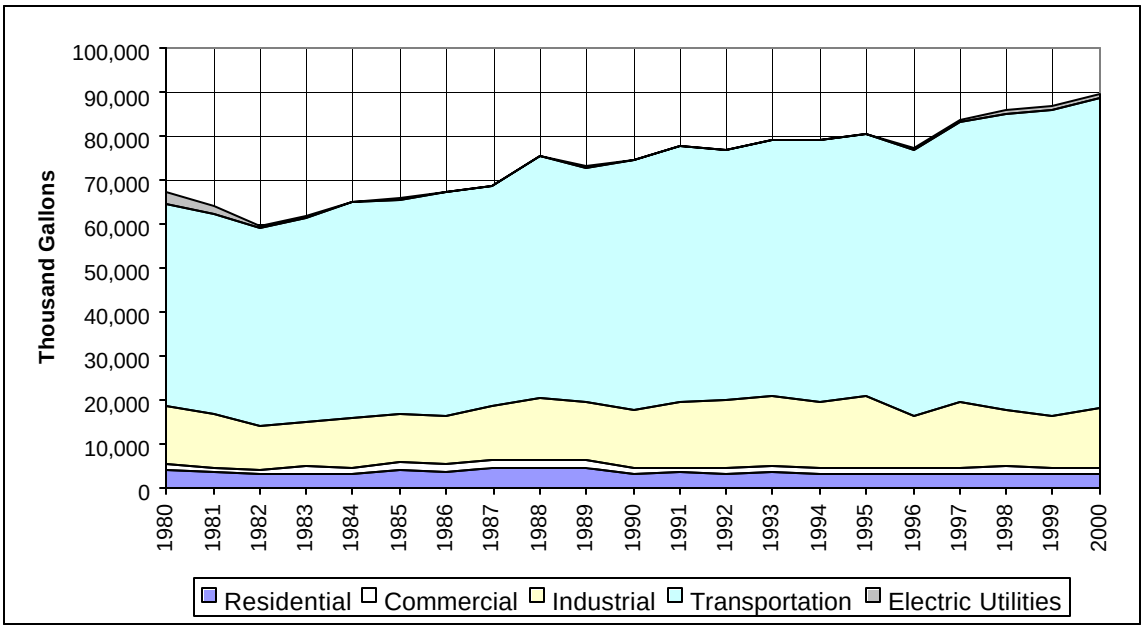
South Carolina Petroleum Consumption by Economic Sector

Petroleum use in the transportation sector increased by 54.9% from 1980 to 2000. Petroleum use in the transportation sector reached its lowest point during the recession years of 1980-1983, but has since increased nearly every year. In 2000, the transportation sector accounted for 79.1% of all petroleum use in South Carolina, followed by the industrial sector, which accounted for 15% of the total petroleum use.

2000



1980-2000

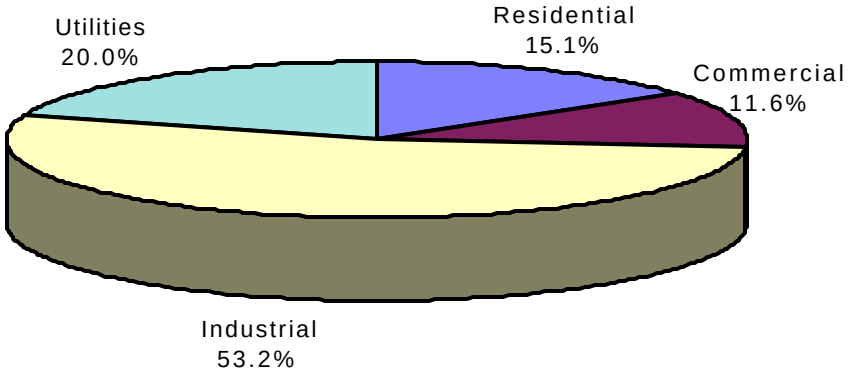


Source: Energy Information Administration, *State Energy Data*.

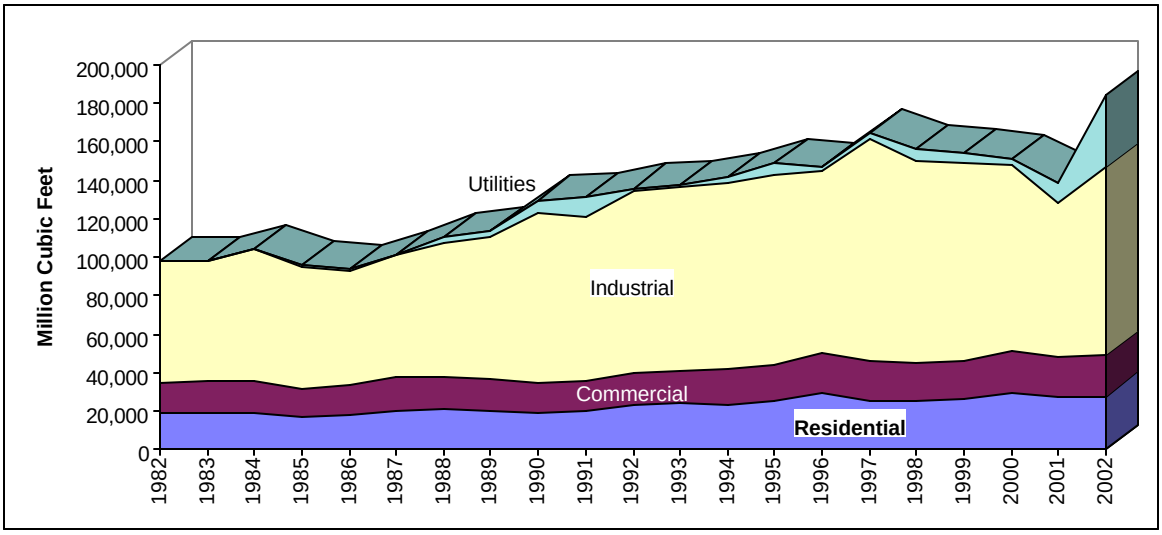
South Carolina Annual Deliveries of Natural Gas to End-Use Customers

End-use deliveries of natural gas in South Carolina were 87.6% higher in 2002 than in 1982. There was a dramatic increase in deliveries of natural gas to electric utilities in 2002, with a 236% jump over 2001 deliveries. This steep increase can be attributed to Santee Cooper's Rainey Generating Station, a 500-megawatt combined cycle unit, which began commercial operation on January 1, 2002. By May 2002, two 150-MW simple-cycle combustion turbines were also in service. The Rainey Station is fueled by natural gas, Santee Cooper's first large facility with gas as its primary fuel source. On a per capita basis, South Carolina ranks 44th in the nation in natural gas consumption.

2002



1982-2002

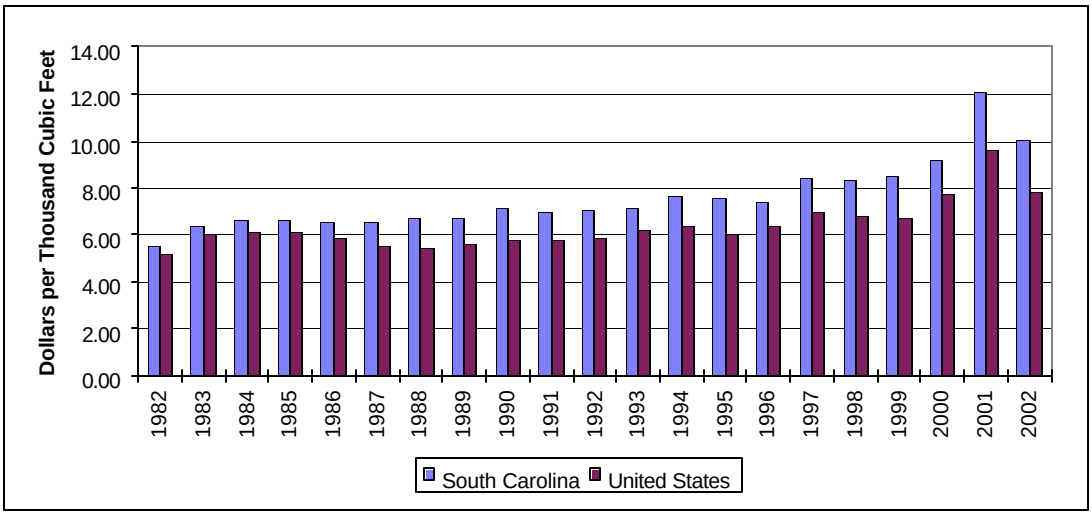


Source: Energy Information Administration, *Natural Gas Monthly*.

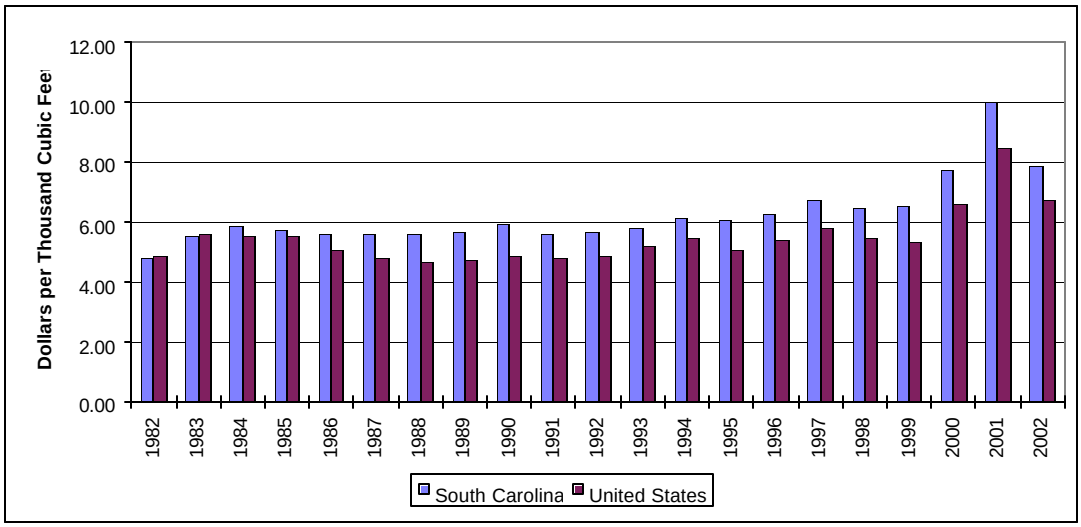
Average Price Comparison of Natural Gas Deliveries to South Carolina and United States End-Use Consumers

South Carolina natural gas prices rose by $4.51 (81.9%) per thousand cubic feet from 1982 to 2002 in the residential sector as compared to $2.62 for the United States average. In the commercial sector, South Carolina natural gas prices increased by $3.08 (64%) per thousand cubic feet with the average United States prices increasing by $1.88. The industrial sector in South Carolina experienced an increase of $0.15 (3.4%) per thousand cubic feet, compared to an increase of $0.14 for the United States. The price of natural gas deliveries to South Carolina electric utilities increased by $1.11 (27.4%) per thousand cubic feet and by $0.29 for the United States.

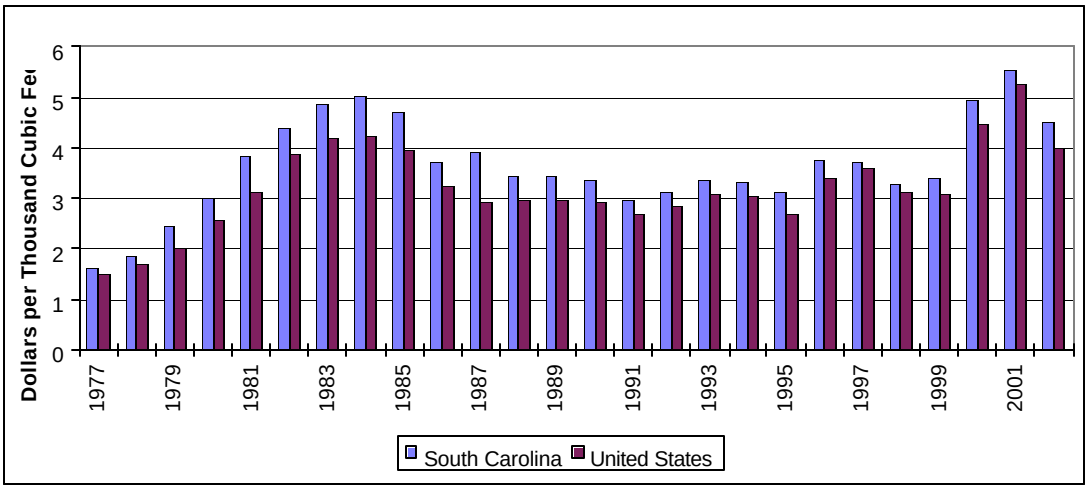
Average Price Comparison of Natural Gas Deliveries to Residential Sector Consumers, 1982-2002



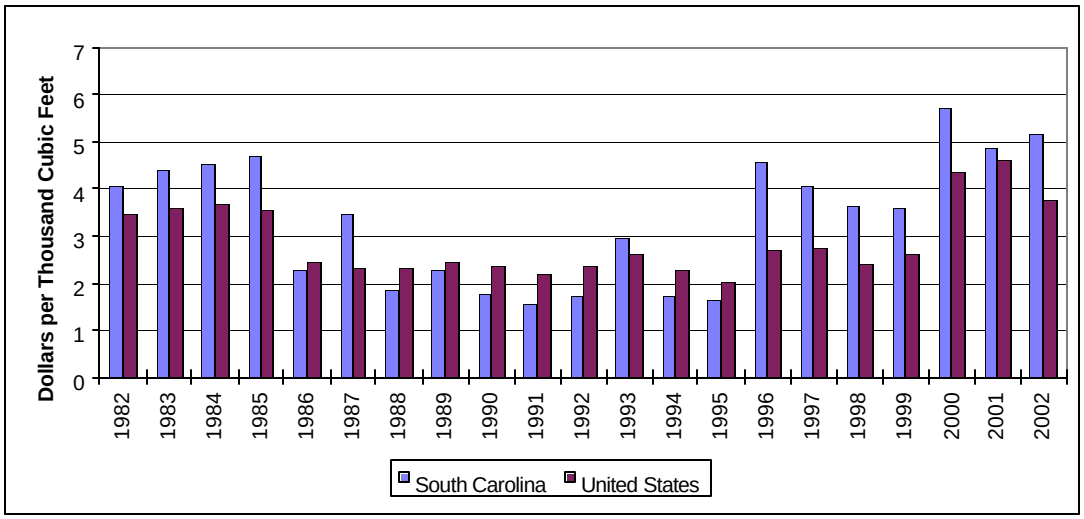
Average Price Comparison of Natural Gas Deliveries to Commercial Sector Consumers, 1982-2002



Average Price Comparison of Natural Gas Deliveries to Industrial Sector Consumers, 1982-2002



Average Price Comparison of Natural Gas Deliveries to Electric Utilities, 1982-2002

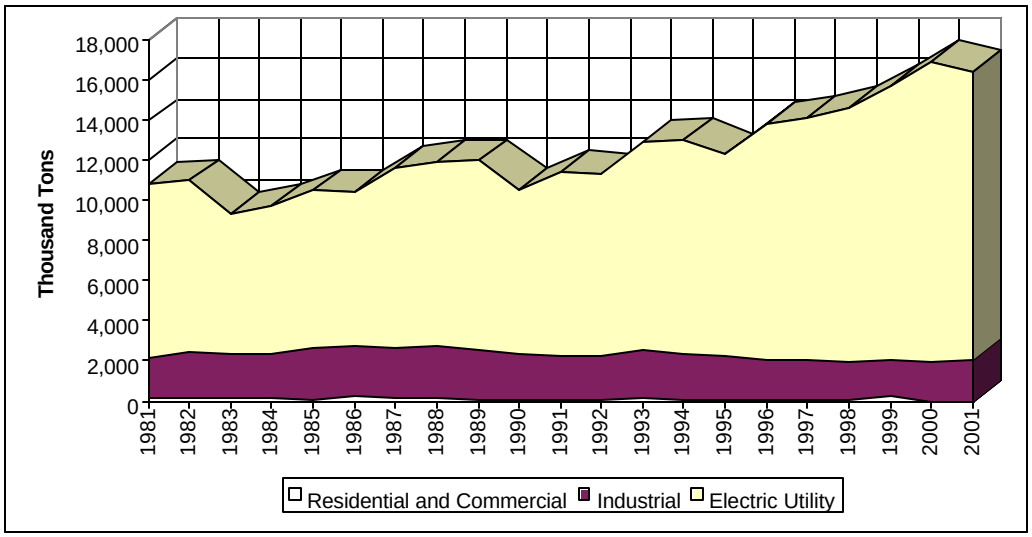


Source: Energy Information Administration, *Natural Gas Monthly*.

South Carolina Annual Coal Consumption by Sector

From 1981 to 2001, the industrial sector decreased its consumption of coal by 1.7%, and electric utilities increased their consumption of coal by 65.7%. Overall, coal consumption in South Carolina increased by 51.2% from 1981 to 2001. In 2001, electric utilities accounted for 87.6% of all coal consumed in South Carolina, while the industrial sector accounted for the remaining 12.4%.

1981-2001

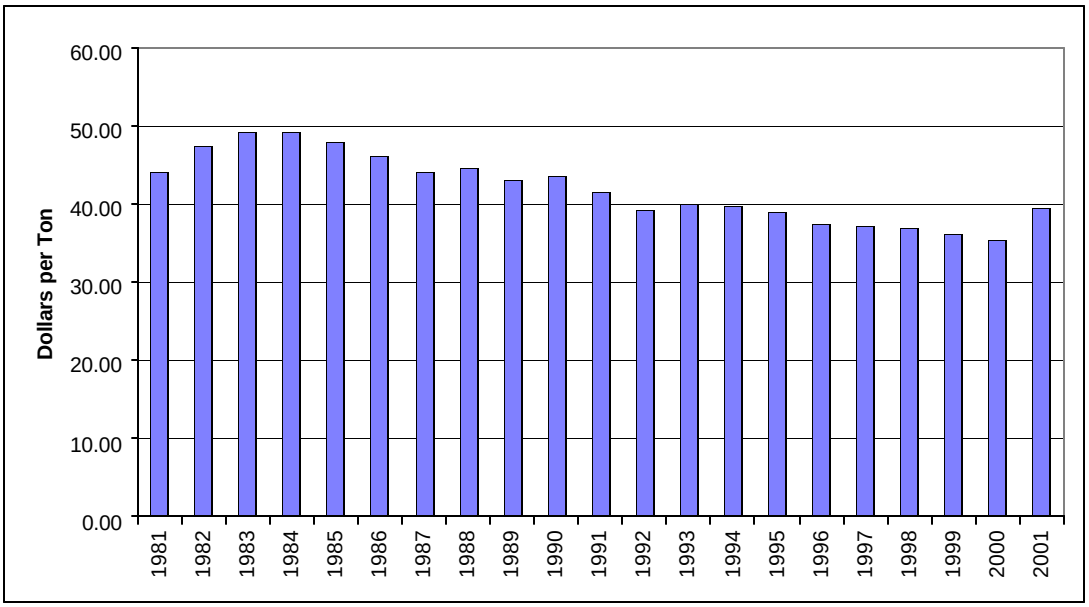


Source: Energy Information Administration, *State Energy Data Report* and *Coal Industry Annual*

Annual Average Coal Prices to Electric Utilities in South Carolina

The average annual coal prices to electric utilities in South Carolina generally hovered in the $37-$45 per ton range during the period 1981 to 2001. During the years 1983 and 1984, however, the prices rose to $49.15 and $49.28 per ton, respectively. Since 1994, the total average price has been steadily declining, reaching an all-time low figure of $35.40 in 2000

1981-2001

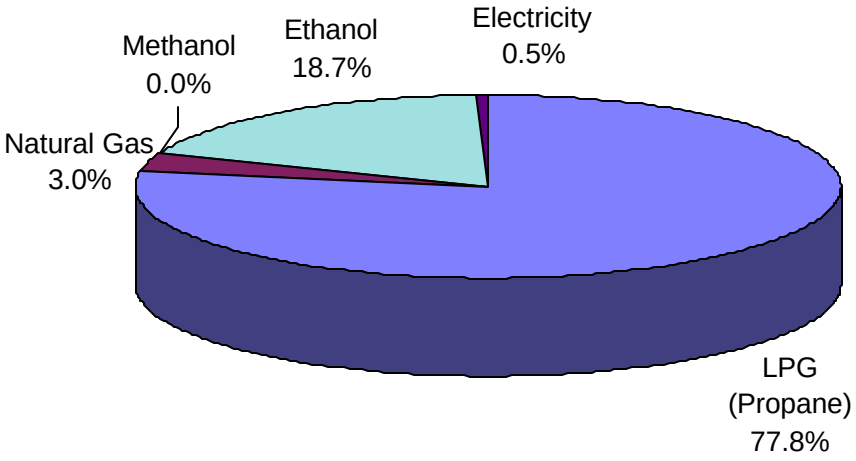


Source: Energy Information Administration, *Quarterly Coal Report*.

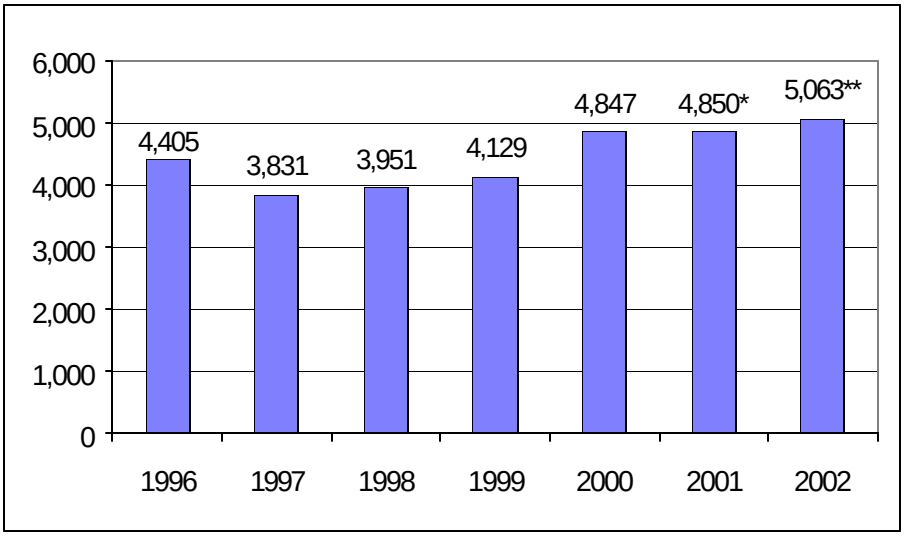
Number of AFVs in Use in South Carolina by Fuel Type

Over the past five years, the number of AFVs in use in South Carolina has increased by 10 percent, and by 17.4 percent from 1999 to 2000. The most widely-used alternative fuel is liquefied petroleum gases (LPG or propane), which accounted for 77.8 percent of the total. Alternative fuel stations in South Carolina consist of 62 LPG, 4 compressed natural gas (CNG), one ethanol, and one biodiesel, for a total of 68.

2000



Estimated Number of Alternative-Fueled Vehicles in Use in South Carolina, 1996-2002

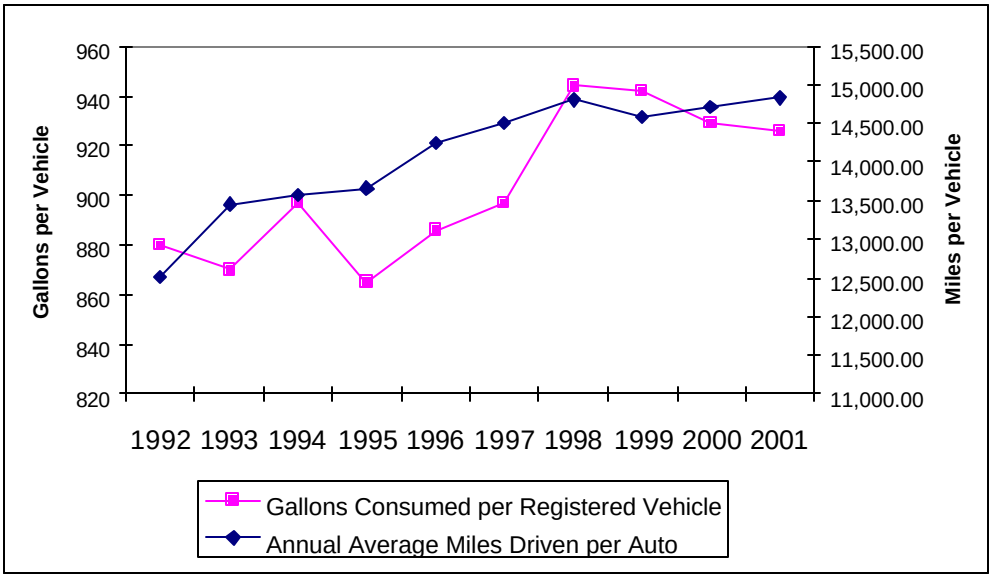


*Preliminary estimates.
**Projected estimates.
Source: Energy Information Administration, *Alternative to Traditional Transportation Fuels*.

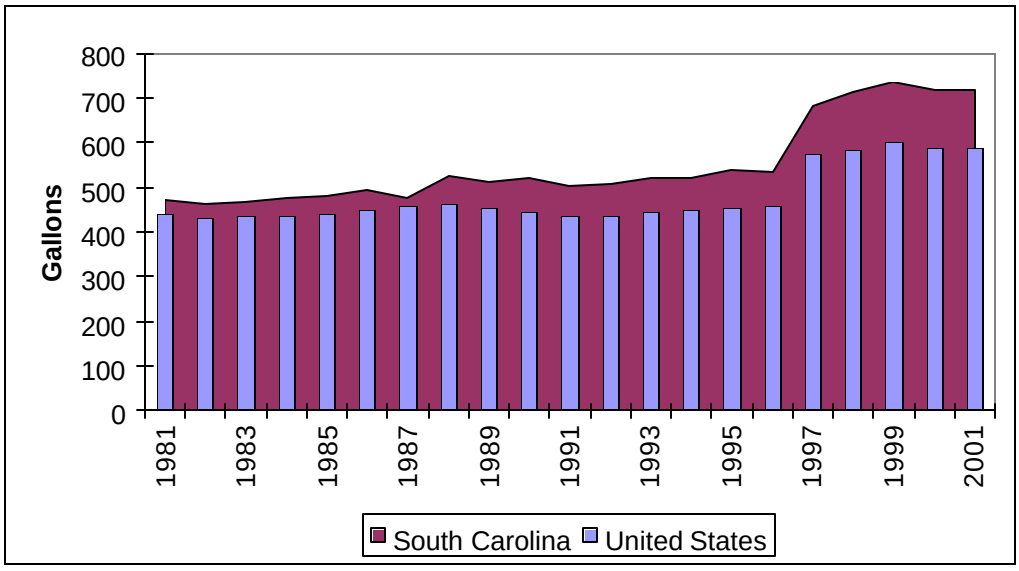
Average Annual Miles Driven per Vehicle, Average Motor Fuel Consumption per Vehicle, and Motor Fuel Consumption per Capita in South Carolina

The average annual miles driven per automobile in South Carolina increased by 18.5 percent during the period 1992 to 2001, and is 19 percent higher than the U.S. average. The average motor fuel consumption per vehicle increased by 5.2 percent from 1992 to 2001. This figure is 22 percent higher than the national average. Also, South Carolina exceeds the national average on a per capita basis for motor fuel consumption.

Miles Driven and Motor Fuel Consumption per Vehicle, 1992 - 2001



U.S. and South Carolina Motor Fuel Consumption per Capita, 1981-2001



Source: South Carolina Department of Revenue, Form L-307; Federal Highway Administration, *Highway Statistics*.